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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,309	12/29/2003	Wen Wei	110751-135443	7988
25943	7590	10/04/2005	EXAMINER	
SCHWABE, WILLIAMSON & WYATT, P.C. PACWEST CENTER, SUITE 1900 1211 SW FIFTH AVENUE PORTLAND, OR 97204			HOFFBERG, ROBERT JOSEPH	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/748,309

Applicant(s)

WEI, WEN

Examiner

Robert J. Hoffberg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/29/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/14/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Specification

1. The disclosure is objected to because of the following informalities: Para. 0027, 0028 and 0029 requires "FIG. 3" to be corrected to "FIG. 4".

Appropriate correction is required.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: #28 in Fig. 1, #35 in Fig. 2, #77 and #78 in Fig. 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 11-14 and 25-28 are vague and indefinite because of a reference to an industry standard makes the claims inherently vague and indefinite as industry standards are subject to change and/or revision. For example, the PCMIA standard originally had boards of a single size, but currently, the revised standard covers multiple sizes.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Edmunds et al. (US 6,407,918).

With respect to Claim 1, Edmunds et al. teaches a modular platform cooling apparatus, comprising: at least one plenum (Fig. 1, #28) associated with the apparatus (Col. 1, line 5); and a first (Fig. 1, #32) and a second (Fig. 1, #36) fan module configured to removably and independently (Col. 5, line 31) engage the plenum.

With respect to Claim 2, Edmunds et al. further teaches that the first and second fan modules each include a plurality of fans (Col. 4, lines 54) arranged in a matrix array (Col. 4, lines 55-58).

With respect to Claim 3, Edmunds et al. further teaches that at least one of the first and second fan modules includes a matrix array of four fans positioned in a 2-across by 2-deep (Col. 2, line 44) in-plane relationship.

With respect to Claim 6, Edmunds et al. further teaches that at least one of the first and second fan modules may be removed from at least one plenum while the other fan module continues to provide airflow (Col. 2, line 3) through a modular platform (Fig. 1).

7. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Ota et al. (US 2001/0028551).

With respect to Claim 15, Ota et al. teaches that a modular platform, comprising: a plurality of modular platform boards (Fig. 13, #105); at least one plenum (Fig. 13, #70) coupled to the modular platform (Fig. 13, #101); and a first (Fig. 1, #30) and a second fan module (Fig. 1, #40) configured to removably and independently (Para. 0068, lines 6-7 and Para. 0086) engage the plenum.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edmunds et al. (US 6,407,918) as applied to claim 2 above, and further in view of Yoshikawa (US 6,222,729).

With respect to Claim 4, Edmunds et al. teaches the modular platform cooling apparatus of claim 2. Edmunds et al. does not teach that the six-fan matrix arrangement in the fan module. Yoshikawa teaches that a fan module can be arranged

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in a 3-across by 2-deep (Col. 3, lines 29-32) in-plane relationship. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform cooling apparatus or modular platform of Edmunds et al. with that of Yoshikawa for the purpose of arranging the fans based on space restraints and air flow requirements.

10. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edmunds et al. (US 6,407,918) as applied to claims 2 above, and further in view of Dent (US 6,537,019).

With respect to Claims 5, Edmunds et al. teaches the modular platform cooling apparatus of claim 2. Edmunds et al. does not teach the design considerations for selection and placement of the two fans. Dent teaches that the fans have a center hub of a certain diameter and the fans positioned in the 2-deep relationship are separated by a distance that is proportional to and a function of the diameter of the hub (Col. 3, lines 14-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular platform cooling apparatus or modular platform of Edmunds et al. with that of Dent to arrange the fans in parallel to maximize air flow. See also Moss et al. (US 5,546,272) Col. 9, lines 59 and 60.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edmunds et al. (US 6,407,918) as applied to claim 2 above, and further in view of Houdek (US 6,406,257).

With respect to Claim 7, Edmunds et al. teaches the modular platform cooling apparatus of claim 6. Edmunds et al. does not teach the circuitry designed to allow for

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hot-swapping the second fan module while the apparatus is in operation. Houdek teaches the circuitry (Fig. 3, #111) designed to allow the second fan module to be removably (Col. 3, line 18 hot swap) added to the apparatus while the apparatus, including the first fan module, is in operation. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform cooling apparatus or modular platform of Edmunds et al. with that of Houdek to add circuitry to remove a fan module during apparatus operation to minimize down time of the apparatus.

12. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edmunds et al. (US 6,407,918) as applied to claims 6, 8, 1 above, respectively.

With respect to Claim 8, Edmunds et al. teaches the modular platform cooling apparatus of claims 6. While Edmunds et al. fails to disclose the specific airflow capacity, he discloses an airflow that is equal for similar sized fans as seen in Fig. 3. It would have been obvious to one of ordinary skill in the art at the time of the invention was made that the number of fans selected to be incorporated into a fan module is proportionate (the first fan module would be selected to provide sufficient airflow capacity to cool $(y/x)m$ modular platform boards at a specified capacity, where y equals the total number of side-by-side fans in the first fan module and x equals the total number of fans positioned side by side across an aggregate width of the modular platform, and m equals the total number of modular platform boards) to fan module's width compared to the total width of modular platform.

With respect to Claims 9, Edmunds et al. teaches the modular platform cooling apparatus of claims 8. While Edmunds et al. fails to disclose the specific remaining airflow when a fan module is removed, it discloses an airflow through each fan housing as seen in Fig. 3. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a capacity greater than 50% or any percentage that the first fan module will continue to provide airflow through the modular platform to support the modular platform boards and a capacity greater than 50% when the second fan module has been removed from the plenum, which would allow the device to operate at maximum efficiency.

With respect to Claims 10, Edmunds et al. teaches the modular platform cooling apparatus and modular platform of claims 1. While Edmunds et al. fails to disclose the specific airflow, it does disclose that the fan modules are capable of providing sufficient airflow, when operating in conjunction with each other. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a combined cooling capacity of $2m$ (where m equals the total number of modular platform boards) or any other capacity to insure that a single fan module alone has the capacity to cool the m modular platform boards.

13. Claims 16, 17, 20 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 2001/0028551) as applied to claim 15 above, and further in view of Edmunds et al. (US 6,407,918).

With respect to Claim 16, Ota et al. teaches the modular platform of claims 15. Ota et al. does not teach that each of the fan modules has a plurality of fans. Edmunds

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et al. further teaches that the first and second fan modules each include a plurality of fans (Col. 4, lines 54) arranged in a matrix array (Col. 4, lines 55-58). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform of Ota et al. with that of Edmunds et al. to increase the cooling capacity and reliability by having multiple fans.

With respect to Claim 17, Ota et al. and Edmunds et al. teaches the modular platform of claims 16. Edmunds et al. further teaches that at least one of the first and second fan modules includes a matrix array of four fans positioned in a 2-across by 2-deep (Col. 2, line 44) in-plane relationship. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform of Ota et al. with that further of Edmunds et al. to increase the cooling capacity and reliability by having multiple fans.

With respect to Claim 20, Ota et al. and Edmunds et al. teaches the modular platform of claims 16. Edmunds et al. further teaches that at least one of the first and second fan modules may be removed from at least one plenum while the other fan module continues to provide airflow (Col. 2, line 3) through a modular platform (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform of Ota et al. with that further of Edmunds et al. to allow continue operation of the modular platform while a fan is serviced.

With respect to Claim 29, Ota et al. further teaches a modular platform of claim 16, wherein the modular platform includes an intake plenum (Fig. 8B, #53a) and an exhaust (Fig. 8B, #53b) plenum.

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14. Claim 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 2001/0028551) and Edmunds et al. (US 6,407,918) as applied to claim 16 above, and further in view of Yoshikawa (US 6,222,729).

With respect to 18, Ota et al. and Edmunds et al. teaches the modular platform of claim 16. They do not teach that the six-fan matrix arrangement in the fan module. Yoshikawa teaches that a fan module can be arranged in a 3-across by 2-deep (Col. 3, lines 29-32) in-plane relationship. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform of Ota et al. and Edmunds et al. with that of Yoshikawa for the purpose of arranging the fans based on space restraints, air flow and reliability requirements.

15. Claims 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 2001/0028551) and Edmunds et al. (US 6,407,918) as applied to claim 16 above, and further in view of Dent (US 6,537,019).

With respect to Claim 19, Ota et al. and Edmunds et al. teaches the modular platform of claim 16. They do not teach the considerations for selection and placement of the two fans in parallel. Dent teaches that the fans have a center hub of a certain diameter and the fans positioned in the 2-deep relationship are separated by a distance that is proportional to and a function of the diameter of the hub (Col. 3, lines 14-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular platform of Ota et al. and Edmunds et al. with that of Dent to arrange the fans in parallel to maximize air flow. See also Moss et al. (US 5,546,272) Col. 9, lines 59 and 60.

16. Claims 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 2001/0028551) and Edmunds et al. (US 6,407,918) as applied to claim 20 above, and further in view of Houdek (US 6,406,257).

With respect to Claim 21, Ota et al. and Edmunds et al. teaches the modular platform of claim 20. They do not teach the circuitry designed to allow for hot-swapping the second fan module while the apparatus is in operation. Houdek teaches the circuitry (Fig. 3, #111) designed to allow the second fan module to be removably (Col. 3, line 18 hot swap) added to the apparatus while the apparatus, including the first fan module, is in operation. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform of Ota et al. and Edmunds et al. with that of Houdek to add circuitry to remove a fan module during apparatus operation to minimize down time of the apparatus.

17. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 2001/0028551) and Edmunds et al. (US 6,407,918) as applied to claims 20, 22 and 16 above, respectively.

With respect to Claim 22, Ota et al. and Edmunds et al. teaches the modular platform of claim 20. While they fail to disclose the specific airflow capacity, Edmunds et al. discloses an airflow that is equal for similar sized fans as seen in Fig. 3. It would have been obvious to one of ordinary skill in the art at the time of the invention was made that the number of fans selected to be incorporated into a fan module is proportionate (the first fan module would be selected to provide sufficient airflow capacity to cool $(y/x)m$ modular platform boards at a specified capacity, where y equals

the total number of side-by-side fans in the first fan module and x equals the total number of fans positioned side by side across an aggregate width of the modular platform, and m equals the total number of modular platform boards) to fan module's width compared to the total width of modular platform.

With respect to Claim 23, Ota et al. and Edmunds et al. teaches the modular platform of claim 22. While they fail to disclose the specific remaining airflow when a fan module is removed, Edmunds et al. discloses an airflow through each fan housing as seen in Fig. 3. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a capacity greater than 50% or any percentage that the first fan module will continue to provide airflow through the modular platform to support the modular platform boards and a capacity greater than 50% when the second fan module has been removed from the plenum, which would allow the device to operate at maximum efficiency.

With respect to Claim 24, Ota et al. and Edmunds et al. teaches the modular platform of claim 16. While they fail to disclose the specific airflow, Edmunds et al. discloses that the fan modules are capable of providing sufficient airflow, when operating in conjunction with each other. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a combined cooling capacity of $2m$ (where m equals the total number of modular platform boards) or any other capacity to insure that a single fan module alone has the capacity to cool the m modular platform boards.

18. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 2001/0028551) and Edmunds et al. (US 6,407,918) as applied to claim 29 above, and in view of Koike (JP 11-307971).

With respect to Claim 30, Ota et al. and Edmunds et al. teaches the modular platform of claim 29. They do not teach that the fan modules are located in the exhaust plenum. Koike teaches that the first and second fan modules (#5) are positioned in the exhaust plenum (#7). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform of Ota et al. and Edmunds et al. with that of Koike to position the fan modules in the exhaust duct to direct the airflow of hot air out of the modular platform.

19. Claim 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 2001/0028551) and Edmunds et al. (US 6,407,918) as applied to claim 29 above, and in view of Negishi (US 6,421,238).

With respect to Claim 31, Ota et al. and Edmunds et al. teaches the modular platform of claim 16. They do not teach the dual plenum fan modules. Negishi teaches that the first (Fig. 7, #24 on left side) and second (Fig. 7, #24 on right side) fan modules are configured as dual plenum (Fig. 8, #28) fan modules, having a first portion acting as an intake (upper surface of Fig. 8, #28) for an adjacent modular platform and a second portion acting as an exhaust (lower surface of Fig. 8, #28) for the modular platform. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform of Ota et al. with that of Negishi to position the plenum wall to create two separate airflow paths to save space, parts and costs.

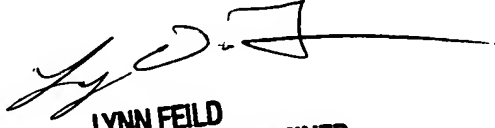
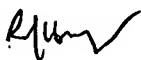
With respect to Claims 32, Ota et al., Edmunds et al. and Patriche et al. teaches the modular platform of claim 31. They do not teach the height of the fan modules. While they fail to disclose a specific fan module height, an appropriate fan is chosen to fit the space constraints (see Edmunds, Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the modular platform for the height of the first and second fan modules to be less than or equal to 2 U or any other height in order to fit into the space provided for ventilation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJH



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